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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/830,527	04/26/2001	Christian Fabry	P-1027	9706

02/24/2003

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EXAMINER	
AFREMOVA, VERA	
ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 02/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary

Application No.	Applicant s.
09/830,527	Fabry et al.
Examiner	**Art Unit**
Vera Afremova	1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) X Responsive to communication(s) filed on *Dec 2, 2002*

2a) X This action is **FINAL.** 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) X Claim(s) *17-39* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) X Claim(s) *17-39* is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) X Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) X All b) Some* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. X Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statement(s) (PTO-1449) Paper No(s).
4. Interview Summary (PTO-413) Paper No(s).
5. Notice of Informal Patent Application (PTO-152)
6. Other

DETAILED ACTION

Status of claims

Claims 17-39 as amended are pending and under examination [Paper No. 13 filed 12/02/2002].

Claims 1-16 were canceled by applicants. [Paper No. 6 filed on 4/26/2001]. Claims 40 and 41 were canceled by applicants [Paper No. 13 filed 12/02/2002].

Response to Arguments

Applicants' arguments filed 12/02/2002 have been fully considered but they are not all found persuasive.

Information Disclosure Statement

The information disclosure statement filed 7/30/2001 fails in part to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each publication or that portion which caused it to be listed as explained in the prior office action and repeated herein.

The IDS filed 7/30/2001 is missing copies of the publications identified as IDS-5 and IDS-6 and the reference IDS-5 does not indicate pages of that portion which caused it to be listed. Therefore, it has been placed in the application file, but the information referred to therein has not been considered.

In response to the prior office action applicants acknowledged the fact that the references #5 and #6 had not been considered (response page 4). Although applicants appear to argue that they do not regard these references as material to patentability, however, at least the reference #6

has been cited in the as-filed specification (page 3) for the definitions of the layer silicates suitable in the presently claimed invention.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 17, 19, 20, 23-26, 30, 32 and 35-38 as amended remain rejected under 35 U.S.C. 102(b) as being anticipated by US 3,414,524 [IDS filed 1/02/2002, cit. No. 1] as explained in the prior office action and for the reasons below.

Claims as amended are directed to a process for increasing decolorizing activity of a layer silicate intended for further treatment of oils and waxes wherein the process comprises step of treating the layer silicate with an acid-producing microorganism. Some claims are further drawn to the use of the layer silicate such as bentonite or montmorillonite, to the use of acid-producing microorganisms such as sulfur-oxidizing bacteria belonging to *Thiobacillus thiooxidans* and iron-oxidizing bacteria belonging to *Thiobacillus ferrooxidans* during the treating step in the process. Some claims are further drawn to addition of microorganisms to an inoculant material prior to treating step, to addition of nutrients for the microorganisms prior to treating step, to maintaining the temperature of the layer silicate during treating step from 20°C to 35°C or to aerating the silicate during the treating step in the process. Some claims are further drawn to a time period of the treating step from 1 day to 365 days.

US 3,414,524 discloses a process of making activated materials by treating materials with acid-producing microorganisms (col. 1, lines 40-42 and col. 2, lines 24-26). The microorganisms are sulfur-oxidizing bacteria belonging to *Thiobacillus thiooxidans* and iron-oxidizing bacteria belonging to *Thiobacillus ferrooxidans* (col. 2, lines 30-33). The material under treatment comprises bentonite clay (col. 2, line 10). Thus, with respect to the claims 19 and 20, the layer silicate in the material under treatment of the cited patent which is disclosed as "bentonite" is considered to be identical to the claimed layer silicate composition comprising either bentonite or montmorillonite in the light of the applicants' definitions wherein bentonite is the same as montmorillonite (specification page 3, last par.). The process of making the activated materials as disclosed by the cited patent is intended for further processes of petroleum treatments or treatments of petroleum oils and waxes (col. 3, line 50-55). The method of the cited patent encompasses steps of adding microorganisms to an inoculant material or a dilute solution prior to treating step (col. 2, line 24), adding nutrients including sulfur-containing products for the microorganisms prior to treating step, maintaining the temperature for microbial reaction at 23°C to 32°C (col. 2, lines 60-62) for at more than 1 day (examples) and passing air or inert gas (col. 5, line 20) during treatment.

Thus, the cited patent is considered to anticipate the claimed method as presently amended because the process of the cited patent comprises identical active step of treating identical material with identical microorganisms as claimed process. The activated material of

the cited patent is intended for the same purpose as the claimed method such as treating petroleum or petroleum oil and wax derivatives.

With regard to the cited patent applicants argue that the agent which is under the immediate treatment is bauxite (response pages 7-10) rather than layer silicate which serves as a carrier for bauxite in the process of the cited patent. Nevertheless, an identical layer silicate containing material comprising bentonite or montmorillonite and bauxite is subjected to the same microbial treatment (see col. 2, line 24-25) as required in the presently claimed method comprising one active step of treating. Thus, whatever differences might be intended or exist in the processes, they do not distinguish between the presently claimed process and the process of the cited patent. Moreover, the final product is intended for the same purpose as the claimed method such as treating petroleum or petroleum oil and wax derivatives.

Therefore the cited patent is still considered to anticipate the claimed invention.

The claim rejection under 35 U.S.C. 102(b) as being anticipated by US 2,813,821 [IDS filed 1/02/2002, cit. No. 2] has been withdrawn because the material under treatment in the method of the cited patent is a macroscopic mixture of silica (SiO_2) and alumina (various aluminum oxides) rather than a layer silicate which has a distinct atomic structure as presently argued by applicants (response page 11 at last paragraph and page 5, last paragraph).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 17-39 as amended remain rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,414,524 [IDS filed 1/02/2002, cit. No. 1] taken with US 2,813,821 [IDS filed 1/02/2002, cit. No. 2], Kusnierova et al. [see IDS filed 6/27/2002. cit. No. 1 which is CA ref. 866899e], US 1,752,721 [see IDS filed 7/30/3001, cit. No. 2] and Grudev et al. [U] as explained in the prior office action and for the reasons below.

Claims as amended are directed to a process for increasing decolorizing activity of a layer silicate intended for further treatment of oils and waxes wherein the process comprises step of treating the layer silicate with an acid-producing microorganism. Some claims are further drawn to the use of the layer silicate such as bentonite or montmorillonite, to the use of acid-producing microorganisms such as sulfur-oxidizing bacteria belonging to *Thiobacillus thiooxidans*, iron-oxidizing bacteria belonging to *Thiobacillus ferrooxidans* and/or citric acid-producing microorganisms belonging to *Aspergillus niger* during the treating step in the process. Some claims are further drawn to addition of microorganisms to an inoculant material prior to treating step, to addition of nutrients for the microorganisms prior to treating step, to particular temperature and aeration for maintaining growth of microorganisms, to a period of treatment and/or to the use of particular water contents during activating step. Some claims are further drawn to crushing layered silicate compositions prior to activation with microorganisms.

The cited patent US 3,414,524 is relied upon as explained above for the disclosure of a process for treating the layer silicate containing materials with acid-producing microorganisms. In particular, it teaches the use of microorganisms belonging to *Thiobacillus sp.* for treating the materials containing bentonite or montmorillonite clays.

It is lacking the disclosure related to the use of different groups of acid-producing microorganisms including *Aspergillus niger*.

However, the cited reference by Kusnierova et al. is relied upon to demonstrate that the layer silicate compositions with montmorillonite, for example, are effectively treated or activated by various microorganisms including both presently claimed groups of microorganisms such as microorganisms belonging to *Thiobacillus sp.* and *Aspergillus niger* (see abstract).

In addition, the cited patent US 2,813,821, which discloses the use of microorganisms belonging to *Aspergillus niger* for treating and activating the mineral containing compositions with oxides of aluminum and silica, is relied upon for the teaching that conditions or particular protocols of methods based on microbial applications depend on microbial growth requirements of a particular microorganism employed in the process including conditions such as, for example: nutrients, temperature, aeration or amounts of water content (col. 4, lines 5 and 18).

The cited patents US 3,414,524 and/or US 2,813,821 are missing particular disclosure related to breaking up the layer silicates and/or minerals containing compositions prior to treatment with acid-producing microorganisms. However, the cited US 1,752,721 teaches crushing clays or breaking up the layer silicate compositions prior to activating by acid treatment.

In addition, the reference by Grudev et al. {U} is relied upon to demonstrate that the best results in treating or activating the layer silicate compositions such as clays are obtained with a combination of acid-producing bacteria and fungal cultures belonging to *Aspergillus niger*, the latter being capable to produce citric acid (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to practice the presently claimed method with a reasonable expectation of success in activating the layer silicate containing compositions by microbial treatment because the prior art teaches the same, is not identical, methods, wherein the same, is not identical, clay containing compositions are subjected to microbial treatment with identical microbial culture alone {US 3,414,524} or in combination {Kusnierova et al., Grudev et al.}. One of skill in the art would have been motivated to combine both groups of microorganisms including bacteria and fungi for treating or activating the layer silicate containing compositions for the benefits of improved activating or leaching as taught by the prior art {Grudev et al.}. The activated layer silicate containing compositions are used for further treatment of oil and wax derivatives from petroleum as suggested by US 3,414,524. The particular conditions including temperature, aeration, nutrients, time period which are depending on a particular microorganisms employed in the process, are considered to be within the purview of the ordinary skill practitioner. Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

The claimed subject matter fails to patentably distinguish over the state art as represented be the cited references. Therefore, the claims are properly rejected under 35 USC § 103.

With regard to the claim rejection under 35 USC § 103 applicants argue that the cited patent US 3,414,524 can not be a basis for the instant rejection since the process disclosed by US 3,414,524 is distinct from the presently claimed method (response page 13, par. 4). However, applicants appear to acknowledge that the layer silicate is incorporated into at least some mineral compositions under treatment with acid-producing microorganisms in the method of US 3,414,524 (response page 8, last par.). Thus, whatever differences might be intended or exist in the processes as argued, they do not distinguish between the presently claimed process and the process of the cited patent. Moreover, the final products of the method of US 3,414,524 is suggested for further use in treating of petroleum or petroleum oil and wax derivatives within the meaning of the present claims including decolorization. The presently claimed method does not require active step of making the decolorized oils and/or waxes.

With regard to the reference by Kusnierova et al. and by Grudev et al. applicants' arguments appear to be drawn to a mechanism of microbial action on clay minerals rather than to the differences in the process steps of treating the clay minerals. Although the microbial action on clay minerals results in the degradation of the mineral structure as disclosed by Kusnierova et al., the degree of this degradation or activation of decolorizing effects is not within the scope of the claimed subject matter. Moreover, the reference by Grudev et al. teaches activation of clay

minerals, including leaching or removal of components or decolorization, as the result of treating clays with acid-producing microorganisms.

No claims are allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (703) 308-9351. The examiner can normally be reached on Monday to Friday from 9:00 to 5:30.

IRENE MARY
PRIMARY EXAMINER

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vera Afremova,

Art Unit 1651

February 14, 2003.